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WATER-POWER DEVELOPMENT ON THE NATIONAL FORESTS AND PROPOSED NEW LEGISLATION¹

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This convention has been called for the purpose of discussing ways and means for promoting water-power development in the western states and particularly for considering the extent and form of federal legislation which would be best adapted to that end.

This question has been much discussed in recent years and different men and groups of men have reached radically different conclusions, partly because they had different theories of economics and of government, partly because the discussion has been allowed to center around certain academic questions having no essential bearing on a practical constructive program, but largely because there has been a surprising lack of agreement upon the main facts that affect the problem, a lack of agreement that can be due to nothing else than a failure to make that careful and open-minded investigation which ought to precede the discussion of any question of public policy.

It is obvious that widely varying conclusions can be reached by equally valid argument if the discussions start upon a different assumption of fact. For this reason it is often the practice in the trial of cases at law for the opposing attorneys to agree upon a statement of fact in order that the discussion may be confined entirely to a question of law. The work of this convention would have far more value could a similar procedure have been followed here. The subject under discussion involves questions of public policy upon which there would be a sufficient diversity of conclusion were there full accord upon the facts. It ought no longer to be necessary to challenge conclusions, the only foundation for which is a misapprehension of fact, particularly when the truth can be learned by anyone who takes the time and has the inclination to discover it. Eight years of close association with the water-power questions of the western states have convinced me that, if we elimi-

¹ Read before the Western States Water Power Conference, September, 1915.

nate from consideration those who will cling to preconceived opinions under any circumstances, the most fruitful cause of difference of opinion on a proper public policy toward water-power development is misunderstanding of the actual conditions that exist.

The statement is frequently made that while there are 60,000,-000 of water horse-power in the United States, but 6,000,000 have yet been developed, and that, while millions of tons of coal, an expendable resource, are being annually consumed in the production of steam-power, 90 per cent of our water-power, chiefly in the western states, is running unused to the sea, while all that would be necessary to bring about the substitution of water-power for steam-power and to check the appalling waste of coal, is adequate federal legislation.

Whether there are, in fact, 60,000,000 water horse-power in the United States, no man knows. The estimate quoted was made some years ago on admittedly inaccurate data, on an assumption of mechanical efficiency not yet attained, and for a distant future when the cost of coal would make steam-power prohibitive. However this may be, there is no doubt that there are, particularly in the West, large amounts of undeveloped water-power. The estimated development of 6,000,000 horse-power is correct if the previous rate of increase has been maintained since the last census. Of this amount about one third is used directly in manufacturing; the remaining 4,000,000 horse-power are used in the generation of electric power. The steam-power development of the United States is about 28,000,000 horse-power, of which 18,000,000 is used directly in manufacture and 10,000,000 in the generation of electric power. But it by no means follows that if the public domain and the navigable rivers were thrown wide open to private exploitation that water-power would or could entirely displace steam power. Direct water-power could not be substituted for direct steam-power in manufacturing because the great manufacturing cities have no water-powers. In so far as substitution takes place it must come through the medium of electric transmission.

Under prevailing practice in hydro-electric systems, the steam installation required for reserve and for peak load service is 50 per cent or more of the water installation. Hence, even if abundant water-power were available within economical transmission distance from all our markets, and all our industries could be served

with electric power, not less than 12,000,000 steam-power would still be required. But the water-power is not so available. It is absurd to assume that the millions of undeveloped water-power in Oregon and Washington can displace other millions of steam-power in New York and Pennsylvania, at least until the time when the shadowy dream of a nation-wide transmission network shall have become a practical reality. Nor can much nearer sources be utilized under present-day conditions. Although possessing hundreds of thousands of horse-power of undeveloped water resources, entirely free from any possibility of federal interference, the states of New York and Pennsylvania have an aggregate steam installation of 7,000,000 horse-power, one fourth of the total in the United States. The water-powers of western Pennsylvania and of northern New York cannot, under present conditions, be developed and transmitted to compete with steam-power in the coal fields of Pennsylvania or at tidewater in the city of New York. The whole matter is one of business economics which no form of legislation short of an outright subsidy can materially alter.

In order to support the argument against governmental control of water-power sites on the public lands, the statement is made again and again that, although there is urgent need for more power, its development is stagnant in the western states. Volumes of argument have been based on this unproved and unprovable assertion. It is loudly acclaimed that the eastern states, unhampered in the development of their water powers by the incubus of public land ownership have far outstripped the western states, and the demand is made that the federal government relinquish its control over the power sites on its lands in order that development may proceed in the West as it has in the East under the stimulus of private ownership, or in any event under the wiser and, of course, more lenient administration of the several states.

In any comparison of power development in the East and in the West it should not be forgotten that water-power development began in the East more than a hundred years ago and that the aggregate development includes hundreds, if not thousands, of small water-powers used directly in manufacturing. In the West, on the other hand, water-powers have been developed chiefly in connection with the electrical industry and practically all the development has taken place within the last twenty years. It would,

therefore, be only natural to expect that the longer established, more thickly settled eastern states, engaged so extensively in manufacturing, should have developed their electrical industries and their water-power resources to a greater degree than the western states. Yet when we investigate, we find that the actual fact is quite the contrary. In rapidity of development, and in extent of development in proportion to population, the western states have accomplished more in twenty years than the eastern states in a hundred years.

In the western states—and by “western states” I mean the eleven states west of the Kansas boundary, the group which contains practically all of the remaining public land—the amount of power used in the generation of electricity by public utility corporations, street railway companies and municipalities has increased in the last ten years alone by 440 per cent, or twice as fast as in the remainder of the United States, or in that group of eastern states which includes the New England, Middle Atlantic and South Atlantic States. In proportion to population, the amount of power which is used for these purposes is two and one-half times as much in the western states as it is in the remainder of the United States, and twice as much as it is in the eastern states.

If we consider the development of water-power as distinct from all other power, we find the same situation existing. While the development of water-power in the eastern states has increased 90 per cent in the last ten years, it increased five times as fast in the western states, or 450 per cent, more than doubling each five years. Furthermore, in proportion to population, four times as much water-power is developed and used in the western states as in the remainder of the United States, and nearly three times as much as in the eastern states. These figures are from the latest reports of the Bureau of the Census and are not subject to controversy.

If we look into the situation in more detail in some of the western states we may learn to what degree and for what reason there is stagnation in power development, if, in fact, there is any foundation whatever for the statement. The power plants of public utility corporations in the state of California have an installation of 1,000,000 horse-power. The sum of the maximum loads carried by the individual plants in 1914 was a little over 700,000

horse-power. The sum of the simultaneous peaks on the several systems probably did not exceed 600,000 horse-power. That means that the state of California had a reserve in excess of all demands of 400,000 horse-power. Of course, a certain amount of reserve for emergency and to anticipate extensions of market is necessary, but if we should allow for even a 50 per cent reserve there would still be left a surplus of 100,000 horse-power. It would be surprising, indeed, if under such circumstances there was any considerable activity in power development at the present time in California. The state of California needs more users, not more power. A similar situation exists in Oregon and Washington and other western states. New plants are not being built in this state because the output of existing plants cannot be sold. Tens of thousands of horse-power in the Puget Sound district and in eastern Washington are unused because even at the exceptionally low figure at which the power has been offered, there are no takers. There is scarcely a power center of consequence in the western states that is not today developed ahead of the available market. Owners of power plants are bending their efforts to dispose of the power they already have, rather than to develop new plants to remain unused.

Another common statement in the same class as that just discussed is to the effect that whatever development takes place must be on privately owned land; that under existing laws no development is being made or can be made on the public land; and that he who would engage in the laudable effort of developing the industries, of promoting the prosperity and of furnishing employment to the citizen of his state must carefully avoid all those sites and locations which, even in the smallest degree, are in the ownership and control of the federal government.

Of the 1,800,000 horse-power of developed water-power in the western states, 50 per cent is in plants constructed in whole or in part on the National Forests and operated under permit from the Department of Agriculture. In addition, some 200,000 horse-power are in process of construction and over a million horse-power more are under permit for future construction. If we add the plants which are occupying public land outside of the National Forests we should find that considerably more than one-half of the developed water-power of the western states is being operated on the public lands under permit from the federal government. Nor

is this merely past history which recent conditions are changing. The Pacific Light and Power Corporation recently completed in California two power plants with an aggregate installation of 94,000 horse-power as the initial step in an ultimate development of 250,000 horse-power, all of which will be on National Forest land and is now under permit. The Great Western Power Company in the same state has permits for developments aggregating 300,000 horse-power on the Feather River and is making development as fast as the additional power can be disposed of. The Nevada-California Power Company has four plants in operation on the National Forest, will complete a fifth this season, and will begin a sixth next year. The Portland Railway, Light and Power Company is operating a plant on the Oregon National Forest and has permits for 40,000 horse-power more which it proposes to develop as soon as use can be found for the power. Power sites of nearly 100,000 horse-power on the Baker and Skagit Rivers in Washington are under permit to the Puget Sound Traction, Light and Power Company to be developed when the existing surplus is disposed of. And so I might go on indefinitely. The difficulty which the Department faces is not to find applicants for power sites, but to check applications to a number which it is reasonable to expect will be sufficient to satisfy all the demands of the near future.

The statement that there is not and cannot be any development under existing conditions has no foundation in fact. Such a statement must either spring from ignorance of the facts or be born of the hope that constant reiteration will finally result in popular acceptance, and that such acceptance will, in turn, lead to public support of a program which could not be carried if the facts were known.

If we disabuse our minds of the idea that under any conditions that can reasonably be foreseen water-power can, within this generation at least, more than partially displace steam-power, and that in such displacement as does take place acts of legislatures and of congresses can supersede economic laws; if we know, as we should know, that these western states are already far better supplied with power than any other section of the country, and that their water-power resources have been developed much faster and further than those of any other group of states, until, in fact, there is now a large surplus of unused power; and if, while admitting that existing laws

should be improved, we recognize, what any fair investigation would force us to recognize, that the greater part of the water-power development of the West has been made on the public land under existing law, and that the use of such lands is constantly increasing, limited only by the growth of markets; if we start with these data as our statement of fact, we shall be in a position to discuss intelligently the means by which even greater development may be made in the future, and need not be stampeded, as some would have us stampeded, into a course of action we should be certain to regret.

In considering matters of legislation it should be recognized at the outset that the public as consumers of power are interested only in securing adequate service at reasonable rates. Toward these two ends all legislation should be directed, and no measure should become law which does not, either directly or indirectly have these purposes in view. To gain these ends two steps are essential: First, to provide conditions, as far as legislation can provide them, under which power may be developed at reasonable cost; and, second, when so developed to provide the means for obtaining its sale at a reasonable price, that price being reasonable which allows just so much return to capital, and no more, as will insure the maintenance of an adequate supply.

Of all the elements that enter into the cost of developing a power system, the only one that can be altered by legislation is the cost of capital. To secure cheap capital it is necessary to protect the investment and to provide the conditions under which reasonable returns may be assured. Certainty of tenure for a period of reasonable length is a prime requisite for cheap capital. The main defect of the present law is its apparent uncertainty of tenure. The fear is expressed that somebody, some time, may abuse the executive discretion that appears to be granted in the law. Although it is very doubtful if any action not justified on its merits could be sustained before the courts; although in the fourteen years that the law has been in existence no attempt has ever been made to dispossess any occupant of the public lands or to stop the operation of any power plant, but merely to require compliance with the law, or to secure its interpretation by the courts; and although for many years the federal departments have administered the law as though the power to revoke a permit save for just cause did not

exist; there is little doubt that rates of interest and of discount are less favorable under the present law than could be secured under a different law. Not, therefore, because development has not been made or will not be made under a permit, but because of the greater cost of capital, is it advisable to provide a different form of grant. The revocable permit has no defenders. The Department of Agriculture has for years advocated a law which would give it the authority to issue term leases which could be vacated only by judicial action for adequate cause. It is scarcely to be doubted that such a law could have been secured years ago had not some of those who have declaimed most loudly against a revocable permit been unwilling to accept in its place anything less than an outright grant of the land, preferring, it would seem, that the present law should remain as their strongest argument against any form of public ownership and control of water-power sites.

As a substitute for the revocable permit any one of three forms of grant might be made; a term lease, a perpetual easement, or a fee simple title. Except that the easement could be canceled if unused and would revert to the public domain if abandoned, there would be no practical difference between a perpetual easement and a patent. Although the demand that title be given has diminished as the probability of securing it has become less, there are even yet some who advance the ingenuous argument that such a procedure would lead to greater power development and under commission regulation of rates could not possibly harm the consumer. It is doubtful if the first proposition is true; it is certain that the second is not.

No development of consequence can be handled on a cash basis. Stocks must be issued and bonds sold. Credit transactions require either business security or property security. A going concern can give both. A new enterprise, unless it can obtain title to the land or certainty of tenure, can give neither. Hence the ease with which an established business can be extended as compared with the promotion of a new enterprise. This explains the promoter's desire to obtain title in order that he may have the potential value of the power site as property security for his financial transactions. He wishes the public to supply his credit. All this might be well enough if every such enterprise was initiated and conducted in a *bona fide* effort toward development and if the effect

which passing of title would have on subsequent rate regulation was not so serious. The history of public land grants forbids the belief that power sites would not be held more often for speculation than for development. This must not be repeated without water-power sites. Present development would be blocked except at the expense of buying out the speculator at any price which he might fix.

But even this is not the most serious result which would follow. The lands thus secured would increase enormously in value, and on this increased value, even under the most stringent of rate regulation, the public would be required to pay interest and profits forever. One need only to examine the books of power and railroad corporations to see how often by transfer after transfer from the original promoter down to the latest owner value has been piled upon value to the limit that the business will stand. The regulating body can deal only with the present owner, and unless investment and property are to be confiscated must permit earnings not only upon the purchase price but also upon any increase in value that may have taken place since the present owner came into possession. This is the crux of the whole situation. It is because of their desire to base rates upon this speculative increase in land values over and above a reasonable return upon the necessary and legitimate investment that certain representatives of water-power interests have so insistently and persistently advocated private ownership of public power sites. Nothing can prevent this except the retention of the sites in public ownership, and no other course should be considered for a moment.

All the protection that capital needs, all the capital that development requires can be obtained under a proper leasing system. All leases should be for a fixed term, probably not less than fifty years, in order that full opportunity may be given to realize upon the investment. The leases should be renewable to the holder upon expiration except only in the event that the federal government, the state or a municipality should wish to take over the properties for the purpose of ownership and operation, and if so taken over the lessee should be paid back his investment, less depreciation paid out of earnings and sinking funds accruing from earnings.

The leases should be unalterable for their term, should contain every condition binding upon the lessee, and after investment has

been made, should be subject to cancellation only upon failure to comply with the express terms of the lease and by action instituted in appropriate courts, and even then only when the breach is of such a nature that it cannot be remedied by an action to compel specific performance. No one can honestly say that with such a form of tenure coupled with reasonable conditions of occupancy, there will be any difficulty in securing upon favorable terms all the capital that the necessities of the western states require.

Much has been said on the question of rental charges for power sites and many strange economic theories have been advanced concerning the relation between such rental charges and the rates which consumers must pay for their power. It goes without saying that a rental charge, as well as every other charge of whatever source or nature made upon a public utility, is paid by the public in rates, for the simple reason that a public utility, as such, has no other source of revenue. But it by no means follows that the payment of every rental charge must mean an increase in prices to the consumer. The rates of a public utility corporation are not adjusted to such a hair-trigger nicety. No one would have the temerity to argue that an increase of a few thousand dollars in the taxes paid by the Portland railways company would result in an increase in street-railway fares, or that a corresponding reduction would be followed by reduced fares.

It is advisable to charge a minimum rental in all cases to cover administrative costs. Such an amount would be far too small to appear in rates to consumers. With regard to higher rentals than this it should be established as a general principle that no additional rate should be charged which would have the effect either of increasing prices to consumers or of reducing the earnings of the public utility below a thoroughly adequate return.

Rate and service regulation has an important bearing on the question of securing cheap capital for power development. Regulation is necessary for public protection, but unless intelligently exercised may defeat its own ends. It is better to err on the side of too great than of too little return, and to readjust rates at definite periods of several years interval rather than by a continuous process, otherwise the only incentive to improved methods and to economy of operation is taken away. Such matters, however, are without the province of federal legislation or administration. The

states have the powers of regulation and most of them are exercising it. Duplication by the federal government would be both unnecessary and unwise. Only for clearly emergency cases where a state had not provided itself with the means of regulation would I reserve a right of action under a federal lease. Failure to regulate rates and service today does not prevent the full exercise of the right tomorrow, or have any bearing on future action, but if the essential of ownership is once lost it is lost beyond recovery.

To my mind there is a clear differentiation between the functions of the federal and the state governments in the matter of power development and use; to the former the maintenance of public ownership and the administration of the use of the land; to the latter the regulation of rates and service and issuance of securities. But you have been told that there is an irreconcilable conflict between the nation and the states because the former claims to own the land and the latter claims to own the water, and power cannot be developed without the use of both. Many a ponderous legal argument has been woven around this question of water rights. The subject may be interesting as a matter for academic discussion, but when all is said and done, nobody knows what the final decision will be, and no one who is chiefly concerned in securing practical results, cares. As far as the National Forests are concerned, the Department of Agriculture has solved the matter with mutual satisfaction in the states of California and Oregon, where under written agreement with the state officials all matters affecting power development are handled by coöperative and concurrent action. The Department would be glad to take similar action in any other state.

It is believed that the program of legislation which has been outlined will clear away any real obstacles, if such exist, to power development in the western states. It is believed that such a program is all that capital can reasonably ask and all that the public interest requires. It is believed that if all those who are engaged in power development will cease contending for the impossible goal of private ownership and are really desirous of arriving at a practical working solution, such solution can be had, and to it the Department of Agriculture will give full support.